

PURITANISM VS. RATIONALISM

as seen through

Jonathan Edwards' and Benjamin Franklin's
approach to lightning

[It was not easy to confirm Franklin's theory that clouds can contain an electrical charge. At first, he and other experimenters selected church spires to which they could attach wires, and then waited for a lightning storm to come within range. Then Franklin thought of bringing his apparatus to the storm by means of a kite. The notion of employing a child's toy to make a great discovery in the science of electricity caught the world's fancy.]

Franklin's letter on his famous experiment gives the technical details but does not describe the dramatic day on which the kite was flown.]

Sir,

As frequent mention is made in public papers from *Europe* of the success of the *Philadelphia* experiment for drawing the electric fire from clouds by means of pointed rods of iron erected on high buildings, etc., it may be agreeable to the curious to be informed that the same experiment has succeeded in *Philadelphia*, though made in a different and more easy manner, which is as follows:

[After this my sense of divine things gradually increased, and became more and more lively, and had more of that inward sweetness. The appearance of everything was altered: there seemed to be, as it were, a calm, sweet cast, or appearance of divine glory, in almost everything. God's excellency, his wisdom, his purity and love, seemed to appear in everything; in the sun, moon and stars; in the clouds, and blue sky; in the grass, flowers, trees; in the water, and all nature; which used greatly to fix my mind. I often used to sit and view the moon, for a long time; and so in the daytime, spent much time in viewing the clouds and sky, to behold the sweet glory of God in these things: in the meantime, singing forth with a low voice, my contemplations of the Creator and Redeemer. [And scarce anything, among all the works of nature, was so sweet to me as thunder and lightning. Formerly, nothing had been so terrible to me. I used to be a person uncommonly terrified with thunder: and it used to strike me with terror, when I saw a thunderstorm rising. But now, on the contrary, it rejoiced me. I felt God at the first appearance of a thunderstorm. And used to take the opportunity at such times, to fix myself to view the clouds, and see the lightnings play, and hear the majestic and awful voice of God's thunder: which oftentimes was exceeding entertaining, leading me to sweet contemplations of my great and glorious God. And while I viewed, used to spend my time, as it always seemed natural to me, to sing or chant forth my meditations; to speak my thoughts in soliloquies, and speak with a singing voice.]

Make a small cross of two light strips of cedar, the arms so long as to reach to the four corners of a large thin silk handkerchief when extended; tie the corners of the handkerchief to the extremities of the cross, so you have the body of a kite, which being properly accommodated with a tail, loop, and string, will rise in the air, like those made of paper; but this being of silk, is fitter to bear the wet and wind of a thunder gust without tearing. To the top of the upright stick of the cross is to be fixed a very sharp pointed wire, rising a foot or more above the wood. To the end of the twine, next the hand, is to be tied a silk ribbon, and where the silk and twine join, a key may be fastened. This kite is to be raised when a thunder gust appears to be coming on, and the person who holds the string must stand within a door or window, or under some cover, so that the silk ribbon may not be wet; and care must be taken that the twine does not touch the frame of the door or window. As soon as any of the thunder clouds come over the kite, the pointed wire will draw the electric fire from them, and the kite, with all the twine, will be electrified, and the loose filaments of the twine will stand out every way, and be attracted by an approaching finger. And when the rain has wet the kite and twine, so that it can conduct the electric fire freely, you will find it stream out plentifully from the key on the approach of your knuckle. At this key the vial may be charged; and from electric fire thus obtained, spirits* may be kindled, and all the other electric experiments be performed, which are usually done by the help of a rubbed glass globe or tube, and thereby the sameness of the electric matter with that of lightning completely demonstrated.